

H1569

0056616

Eberline Services
W.O. No. R1-11-016-7132

Bechtel Hanford Inc.
SDG H1569

Case Narrative

Page 1 of 1

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1569 was composed of one water sample designated under SAF No. B02-007 with a Project Designation of: 200 Area Source Characterization 200-CS-1 OU – QC Sampling.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on December 20, 2001.

RECEIVED
MAR 14 2002

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

EDMC

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mannion
Melissa C. Mannion
Program Manager

1/11/02
Date

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1569

SDG 7132

Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford

Contract No. 630

Case no SDG H1569

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B13CT0	200 East & West	WATER		R111016-01	B02-007	B02-007-03	10/31/01 15:00
Method Blank		WATER		R111016-03	B02-007		
Lab Control Sample		WATER		R111016-02	B02-007		
Duplicate (R111016-01)	200 East & West	WATER		R111016-04	B02-007		10/31/01 15:00

SAMPLE SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CS

Version 3.06

Report date 12/20/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1569

QC SUMMARY

SDG 7132

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Case no SDG H1569

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL SAMPLE ID	DEPARTMENT SAMPLE ID
7132	B02-007-03	B13CT0	WATER		2.0 L		11/02/01 2	R111016-01	7132-001
		Method Blank	WATER					R111016-03	7132-003
		Lab Control Sample	WATER					R111016-02	7132-002
		Duplicate (R111016-01)	WATER		2.0 L		11/02/01 2	R111016-04	7132-004

QC SUMMARY

Page 1

SUMMARY DATA SECTION

Page 4

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-QS

Version 3.06

Report date 12/20/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1569

SDG 7132

Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford

Contract No. 630

Case no SDG H1569

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED						QUALIFIERS
			BATCH	2σ %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	
Gas Proportional Counting											
93A	WATER	Gross Alpha in Water	7012-130	20.0	1			1	1	1/1	
93B	WATER	Gross Beta in Water	7012-130	15.0	1			1	1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY

Page 1

SUMMARY DATA SECTION

Page 5

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-PBS

Version 3.06

Report date 12/20/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1569

SDG 7132

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Case no SDG H1569

WORK SUMMARY

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED			SUF-					
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
B13CT0		R111016-01	7132-001	93A/93		12/18/01	12/20/01	MCM	Gross Alpha in Water	
200 East & West	WATER	10/31/01	7132-001	93B/93		12/18/01	12/20/01	MCM	Gross Beta in Water	
B02-007-03	B02-007	11/02/01								
Method Blank		R111016-03	7132-003	93A/93		12/18/01	12/20/01	MCM	Gross Alpha in Water	
	WATER		7132-003	93B/93		12/18/01	12/20/01	MCM	Gross Beta in Water	
	B02-007									
Lab Control Sample		R111016-02	7132-002	93A/93		12/20/01	12/20/01	MCM	Gross Alpha in Water	
	WATER		7132-002	93B/93		12/20/01	12/20/01	MCM	Gross Beta in Water	
	B02-007									
Duplicate (R111016-01)		R111016-04	7132-004	93A/93		12/19/01	12/20/01	MCM	Gross Alpha in Water	
200 East & West	WATER	10/31/01	7132-004	93B/93		12/19/01	12/20/01	MCM	Gross Beta in Water	
	B02-007	11/02/01								

COUNTS OF TESTS BY SAMPLE TYPE										
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	802-007	Gross Alpha in Water	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	802-007	Gross Beta in Water	900.0_ALPHABETA_GPC	1			1	1	1	4
TOTALS				2			2	2	2	8

WORK SUMMARY

Page 1

SUMMARY DATA SECTION

Page 6

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CWS

Version 3.06

Report date 12/20/01

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1569

R111016-03

Method Blank

METHOD BLANK

SDG <u>7132</u>	Client/Case no <u>Hanford</u>	SDG <u>H1569</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R111016-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7132-003</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>B02-007</u>	

ANALYTE	CAS NO	RESULT pCi/L	2 σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.148	1.2	2.7	3.0	U	93A
Gross Beta	12587-47-2	<u>-6.50</u>	4.1	<u>7.6</u>	4.0	U	93B

200 Area Source Chara. 200-CS-1 OU

QC-BLANK 40414

METHOD BLANKS

Page 1

SUMMARY DATA SECTION

Page 7

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 12/20/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1569

R111016-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7132</u>	Client/Case no <u>Hanford</u>	SDG <u>H1569</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>No. 630</u>	
Lab sample id <u>R111016-02</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7132-002</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>B02-007</u>	

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	221	15	<u>3.3</u>	3.0		93A	200	8.0	110	64-136	70-113
Gross Beta	228	12	<u>8.9</u>	4.0		93B	218	8.7	105	74-126	70-130

200 Area Source Chara. 200-CS-1 OU

QC-LCS 40413

LAB CONTROL SAMPLES

Page 1

SUMMARY DATA SECTION

Page 8

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>12/20/01</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1569

R111016-04

B13CT0

DUPLICATE

SDG <u>7132</u>		Client/Case no <u>Hanford</u> SDG <u>H1569</u>	
Contact <u>Melissa C. Mannion</u>		Case no <u>No. 630</u>	
DUPLICATE		ORIGINAL	
Lab sample id <u>R111016-04</u>	Lab sample id <u>R111016-01</u>	Client sample id <u>B13CT0</u>	
Dept sample id <u>7132-004</u>	Dept sample id <u>7132-001</u>	Location/Matrix <u>200 East & West</u> <u>WATER</u>	
	Received <u>11/02/01</u>	Collected/Volume <u>10/31/01 15:00</u> <u>2.0 L</u>	
		Custody/SAF No <u>B02-007-03</u> <u>B02-007</u>	

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	0.136	0.57	1.1	3.0	U	93A	-0.248	0.48	1.0	U	-		
Gross Beta	0.530	1.5	2.4	4.0	U	93B	0.516	1.4	2.3	U	-		

200 Area Source Chara. 200-CS-1 OU

QC-DUP#1 40415

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1569

R111016-01

B13CT0

DATA SHEET

SDG <u>7132</u>	Client/Case no <u>Hanford</u>	SDG <u>H1569</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R111016-01</u>	Client sample id <u>B13CT0</u>	
Dept sample id <u>7132-001</u>	Location/Matrix <u>200 East & West</u>	<u>WATER</u>
Received <u>11/02/01</u>	Collected/Volume <u>10/31/01 15:00</u>	<u>2.0 L</u>
	Custody/SAF No <u>B02-007-03</u>	<u>B02-007</u>

ANALYTE	CAS NO	RESULT pCi/L	2 σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.248	0.48	1.0	3.0	U	93A
Gross Beta	12587-47-2	0.516	1.4	2.3	4.0	U	93B

200 Area Source Chara. 200-CS-1 OU

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1569

Test 93A Matrix WATER
SDG 7132
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1569

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Gross Alpha
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Preparation batch 7012-130

B13CT0	R111016-01	93	7132-001	U
BLK (QC ID=40414)	R111016-03	93	7132-003	U
LCS (QC ID=40413)	R111016-02	93	7132-002	ok
Duplicate (R111016-01)	R111016-04	93	7132-004	- U

Nominal values and limits from method RDLs (pCi/L) 3.0
200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/L	MDA	ALIQ L	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
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Preparation batch 7012-130 2σ prep error 20.0 % Reference Lab Notebook 7012 pg. 130

B13CT0	R111016-01	93	1.0	0.300				4	100				48	12/06/01	12/18	GRB-110
BLK (QC ID=40414)	R111016-03	93	2.7	0.100				22	100					12/06/01	12/18	GRB-112
LCS (QC ID=40413)	R111016-02	93	3.3	0.100				22	100					12/06/01	12/20	GRB-114
Duplicate (R111016-01)	R111016-04	93	1.1	0.300				4	100				49	12/06/01	12/19	GRB-115
(QC ID=40415)																

Nominal values and limits from method 3.0 0.100 5-250 100 180

PROCEDURES	REFERENCE	900.0_ALPHA_BETA_GPC
CP-060	Soil Preparation, rev 3	
CP-070	Soil Dissolution, < 1.0g Aliquot, rev 4	
CP-170	Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 3	

AVERAGES ± 2 SD	MDA	2.0 ± 2.3
FOR 4 SAMPLES	RESIDUE	13 ± 21

METHOD SUMMARIES

Page 1

SUMMARY DATA SECTION

Page 11

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 12/20/01

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1569

Test 93B Matrix WATER

SDG 7132

Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford

Contract No. 630

Contract SDG H1569

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Gross Beta
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Preparation batch 7012-130

B13CT0	R111016-01	93	7132-001	U
BLK (QC ID=40414)	R111016-03	93	7132-003	U
LCS (QC ID=40413)	R111016-02	93	7132-002	ok
Duplicate (R111016-01)	R111016-04	93	7132-004	- U

Nominal values and limits from method RDLs (pCi/L) 4.0
200 Area Source Chara. 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/L	MDA L	ALIQ L	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
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Preparation batch 7012-130 2σ prep error 15.0 % Reference Lab Notebook 7012 pg. 130

B13CT0	R111016-01	93	2.3	0.300				4	100			48	12/06/01	12/18	GRB-110
BLK (QC ID=40414)	R111016-03	93	7.6	0.100				22	100				12/06/01	12/18	GRB-112
LCS (QC ID=40413)	R111016-02	93	8.9	0.100				22	100				12/06/01	12/20	GRB-114
Duplicate (R111016-01) (QC ID=40415)	R111016-04	93	2.4	0.300				4	100			49	12/06/01	12/19	GRB-115

Nominal values and limits from method 4.0 0.100 5-250 100 180

PROCEDURES	REFERENCE	900.0 ALPHABETA GPC
CP-060	Soil Preparation, rev 3	
CP-070	Soil Dissolution, < 1.0g Aliquot, rev 4	
CP-170	Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 3	

AVERAGES ± 2 SD	MDA	5.3 ± 6.9
FOR 4 SAMPLES	RESIDUE	13 ± 21

METHOD SUMMARIES

Page 2

SUMMARY DATA SECTION

Page 12

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 12/20/01

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B02-007-03		Page 1 of 1																																
Collector Watson, D/Bowers DL		Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7N Data Turnaround 45 Days																																
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		H1569 (7132)		SAF No. B02-007		Air Quality <input type="checkbox"/>																																
Ice Chest No. ERC 96-030		Field Logbook No. EL1551		COA B20CS1673C		Method of Shipment Fed Ex																																		
Shipped To TMA/RECRA		Offsite Property No. A020445		Bill of Lading/Air Bill No. 42357454-8578																																				
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage ET 11-01			Preservation	HCl or H2SO4 to pH <2 Cool	Cool 4C	HNO3 to pH <2	H2SO4 to pH <2 Cool 4C	Cool 4C	ZnAc+NaOH to pH >9 Cool	HNO3 to pH <2	HCl or H2SO4 to pH <2 Cool	RT 10 31-01																												
			Type of Container	aGs*	aG	aG	aG	aG	aG	aG	aGs*																													
			No. of Container(s)	3	2	1	1	1	1	2	1																													
			Volume	40mL	1000mL	100mL	100mL	1000mL	500mL	1000mL	40mL																													
SAMPLE ANALYSIS			VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol Ethanol)	Semi-VOA - 8270A (Add-On) (Ethyl phosphate)	See item (7) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (7) in Special Instructions.	Sulfides - 9030	Gross Alpha; Gross Beta	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol Ethanol)																														
Sample No.	Matrix *	Sample Date	Sample Time																																					
B13CT0	WATER	10-31-01	1:00																																					
B13CT1	WATER																																							
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> CHAIN OF POSSESSION <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Relinquished By/Removed From</th> <th>Date/Time</th> <th>Received By/Stored In</th> <th>Date/Time</th> </tr> <tr> <td>Aug Bowers</td> <td>10-31-01/1530</td> <td>RTP 2A 3728</td> <td>10-31-01/1530</td> </tr> <tr> <td>RTP 2A 3728</td> <td>11-01-01</td> <td>RTP 2A 3728</td> <td>11-01-01</td> </tr> <tr> <td>RTP 2A 3728</td> <td>11-01-01</td> <td>RTP 2A 3728</td> <td>11-01-01</td> </tr> <tr> <td>EXP 8</td> <td>11-02-01</td> <td>EXP 8</td> <td>11-02-01</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table> </div> <div style="width: 48%;"> SPECIAL INSTRUCTIONS ** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver) ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc) (2) IG Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Samples stored in Ref. # 2A at the 3728 Shipping Facility on 10/31/01. Collector not available to relinquish samples on 11/01/01 for shipment. ET 11-01 </div> </div>													Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	Aug Bowers	10-31-01/1530	RTP 2A 3728	10-31-01/1530	RTP 2A 3728	11-01-01	RTP 2A 3728	11-01-01	RTP 2A 3728	11-01-01	RTP 2A 3728	11-01-01	EXP 8	11-02-01	EXP 8	11-02-01								
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time																																					
Aug Bowers	10-31-01/1530	RTP 2A 3728	10-31-01/1530																																					
RTP 2A 3728	11-01-01	RTP 2A 3728	11-01-01																																					
RTP 2A 3728	11-01-01	RTP 2A 3728	11-01-01																																					
EXP 8	11-02-01	EXP 8	11-02-01																																					
LABORATORY SECTION		Received By		Title		Date/Time																																		
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time																																		

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT			
Client:	<u>Bechtel Hanford Inc.</u>	Date/Time received	<u>11-02-01 9:30 AM</u>
CoC No.	<u>B02-007-03</u>		
Container I.D. No.	<u>ERC96-030</u>	Requested TAT (Days)	<u>45</u> P.O. Received Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
INSPECTION			
1.	Custody seals on shipping container intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
2.	Custody seals on shipping container dated & signed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
3.	Custody seals on sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
4.	Custody seals on sample containers dated & signed?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
5.	Cooler Temperature: _____	Packing material is:	Wet <input type="checkbox"/> Dry <input checked="" type="checkbox"/>
6.	Number of samples in shipping container: <u>1</u>		
7.	Number of containers per sample: <u>2x each</u> (Or see CoC _____)		
8.	Paperwork agrees with samples?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
9.	Samples have: Tape <input type="checkbox"/> Hazard labels <input type="checkbox"/> Rad labels <input type="checkbox"/> Appropriate sample labels <input checked="" type="checkbox"/>		
10.	Samples are: In good condition <input checked="" type="checkbox"/> Leaking <input type="checkbox"/> Broken Container <input type="checkbox"/> Missing <input type="checkbox"/>		
11.	Describe any anomalies: _____ _____		
13.	Was P.M. notified of any anomalies? Yes <input type="checkbox"/> No <input type="checkbox"/> Date _____		
14.	Received by <u>Chris J. Maestas</u> Date: <u>11-02-01</u> Time: <u>9:30 AM</u>		

Customer Sample No.	cpm	mr/hr	Customer Sample No.	Cpm	mr/hr

Ion Chamber Ser. No. _____

Calibration date _____

Survey Meter Ser No. _____

Calibration date _____

DATA PACKAGE TRAVELER SHEET

SDG_NUM	DP_STATUS	US_START_DATE	US_END_DATE	COMMENTS
H1568	Delivery Group	11/2/01	11/27/01	Original chem data is filed in H1568, original chem includes H1568 and H1571
	Final Data - Chemi	11/2/01	11/27/01	Chem - 11/27/01 (SV, VOA add-on, Diesel, Metals, Wet Chem, VOA)
	Final Data - Radioc	11/2/01	11/20/01	Rad - 11/20/01 (GA, GB, GEA, Np, C14, Iso Thorium, Iso U); 11/19/01 (Total U, Iso Pu, GEA add-on);
	Login	11/20/01	11/28/01	Rad - 11/20/01; Chem - 11/28/01
	On Hold (Incomplet	11/20/01	11/27/01	Still need chem rcvd 11/27/01
	Priority Data - Che	11/2/01	11/21/01	Chem - 11/19/01 (SV, VOA add-on, Diesel, Metals, Wet Chem, PCBs); 11/21/01 (VOA)
	Priority Data - Radi	11/2/01	11/19/01	Rad - 11/17/01 (GA, GB, C14, Iso Thorium); 11/19/01 (Gamma Spec, Gamma Spec Add-on, Iso U, Total U, Iso Pu)
	Validation	11/29/01		7 Day TAT



Analytical Report

Client: TNU-HANFORD B02-007 H1569/H1576

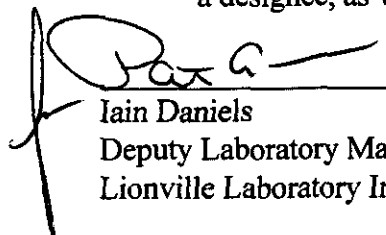
W.O.#: 11343-606-001-9999-00

LVL#: 0111L258

Date Received: 11-02-01

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.
2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met with the exception of pH, Nitrate, Nitrite and Phosphate.
4. The cooler temperature was recorded on the chain of custody.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS were within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike recoveries were within the 75-125% control limits; insufficient sample volume was submitted to perform a matrix spike for Sulfide.
8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

11-15-01
Date

njp011-258

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	<u>EPA /600</u>	<u>SW846</u>	<u>OTHER</u>
Acidity	305.1		
___ Alkalinity ___ Bicarbonate ___ Carbonate	310.1		
BOD	405.1		___ 5210B (b)
Ion Chromatography:			
___ Bromide ___ Chloride ___ Fluoride	300.0	9056	
___ Nitrate ___ Nitrite ___ Phosphate	300.0	9056	
___ Sulfate ___ Formate ___ Acetate ___ Oxalate	300.0	9056	
Chloride	325.2	9251	
Chlorine, Residual	330.5 (mod)		
Cyanide, Amenable to Chlorination	335.2	9010B	
Cyanide, Total	335.2	9010B	___ 9014 ___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable			___ 412 (a) ___ 4500CN-I (b)
COD	410.4(mod)		___ 5220C (b)
Color	110.2		
Corrosivity by Coupon		1110(mod)	
Chromium VI		7196A	___ 3500Cr-D (b)
Fluoride	340.2		___ 4500-FC
Hardness, Calcium	215.2		
Hardness, Total	130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	425.1		
___ Nitrate-Nitrite ___ Nitrate ___ Nitrite	353.2		
Ammonia	350.3		
Total ___ Kjeldahl ___ Organic Nitrogen	351.3		
Total ___ Organic ___ Inorganic Carbon	415.1	9060	
Oil & Grease	413.1	9070	
___ pH ___ pH; paper	150.1	9040B	___ 9041A
Petroleum Hydrocarbons, Total Recoverable	418.1		
Phenol	420.1	420.2	___ 9065 ___ 9066
___ Ortho ___ Total Phosphate	365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	160.5		
Sulfide	376.1	9030B/9034 (acid soluble)	
Reactive ___ Cyanide ___ Sulfide		Section 7.3 (___ 9014 ___ 9030B)	
Silica	370.1		
Sulfite	377.1		
Sulfate	375.4	9038	
Specific Conductance	120.1	9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach		1312	
Total ___ Dissolved ___ Suspended ___ Solids	160 ___ .1 ___ .2 ___ .3		
Total Organic Halides	450.1	9020B	
Turbidity	180.1		
Volatile Solids:			
___ Total ___ Dissolved ___ Suspended	160.4		
Other:		Method:	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

- MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
 - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
 - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
 - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
 - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
 - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
 - f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/15/01

CLIENT: TNU-HANFORD B02-007 H1569/1576

LVL LOT #: 0111L258

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
~002	B13CT0	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
		Nitrate Nitrite	0.020u	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		pH	7.0	PH UNIT	0.01	1.0
		Sulfide	1.0 u	MG/L	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/15/01

CLIENT: TNU-HANFORD B02-007 H1569/1576
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0111L258

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
BLANK10	01LIC073-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	01LN3B59-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	01LAMB49-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	01LSD060-MB1	Sulfide	1.0 u	MG/L	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/15/01

CLIENT: TNU-HANFORD B02-007 H1569/1576

LVL LOT #: 0111L258

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
*****	*****	*****	*****	*****	*****	*****	*****
-002	B13CT0	Chloride by IC	5.2	0.24	5.0	98.2	1.0
		Fluoride by IC	10.6	0.00	10.0	105.6	1.0
		Nitrite by IC	4.82	0.25u	5.00	96.4	1.0
		Nitrate by IC	4.77	0.25u	5.00	95.5	1.0
		Phosphate by IC	4.7	0.25u	5.0	95.0	1.0
		Sulfate by IC	4.9	0.25u	5.0	97.5	1.0
		Nitrate Nitrite	0.51	0.02u	0.50	102.4	1.0
		Ammonia, as N	1.9	0.10u	2.0	97.0	1.0
BLANK10	01LIC073-MB1	Bromide by IC	4.8	0.25u	5.0	96.0	1.0
		Chloride by IC	4.8	0.25u	5.0	96.7	1.0
		Fluoride by IC	10.9	0.50u	10.0	108.7	1.0
		Nitrite by IC	4.89	0.25u	5.00	97.8	1.0
		Nitrate by IC	5.03	0.25u	5.00	100.6	1.0
		Phosphate by IC	5.2	0.25u	5.0	104.2	1.0
		Sulfate by IC	4.8	0.25u	5.0	95.7	1.0
BLANK10	01LN3B59-MB1	Nitrate Nitrite	0.52	0.02u	0.50	104.0	1.0
BLANK10	01LAMB49-MB1	Ammonia, as N	2.0	0.10u	2.0	101.0	1.0
		Ammonia, as N MSD	2.1	0.10u	2.0	103.0	1.0
BLANK10	01LSD060-MB1	Sulfide	7.9	1.0 u	7.7	102.6	1.0
		Sulfide MSD	7.7	1.0 u	7.7	100	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 11/15/01

CLIENT: TNU-HANFORD B02-007 H1569/1576
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0111L258

SAMPLE	SITE ID	ANALYTE	SPIKE#1	SPIKE#2	%DIFF
			%RECOV	%RECOV	
BLANK10	01LAMB49-MB1	Ammonia, as N	101.0	103.0	2.0
BLANK10	01LSD060-MB1	Sulfide	102.6	100	2.6

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/15/01

CLIENT: TNU-HANFORD B02-007 H1569/1576

LVL LOT #: 0111L258

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RED	DILUTION FACTOR(REF)
-----	-----	-----	-----	-----	-----	-----
-002REP	B13CT0	Chloride by IC	0.25u	0.35	NC	1.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	0.25u	0.25u	NC	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	0.25u	0.25u	NC	1.0
		Nitrate Nitrite	0.02u	0.02u	NC	1.0
		Ammonia, as N	0.10u	0.10u	NC	1.0
		pH	7.0	7.0	0.4	1.0
		Sulfide	1.0 u	1.0 u	NC	1.0

ACOI

E F G H

Special instructions:				DATE/REVISIONS:				Lionville Laboratory Use Only			
				ACT ① 1. <u>As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V, Zn</u>				<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Samples were:</p> <p>1) Shipped <input checked="" type="checkbox"/> or Hand Delivered <input type="checkbox"/></p> <p>Amb # <u>See Below</u></p> <p>2) Ambient or Chilled <input type="checkbox"/></p> <p>3) Received in Good Condition <input checked="" type="checkbox"/> or N</p> <p>4) Samples Properly Preserved <input checked="" type="checkbox"/> or N</p> <p>5) Received Within Holding Times <input checked="" type="checkbox"/> or N</p> </div> <div style="width: 45%;"> <p>Temper Resistant Seal was:</p> <p>1) Present on Outer Package <input checked="" type="checkbox"/> or N</p> <p>2) Unbroken on Outer Package <input checked="" type="checkbox"/> or N</p> <p>3) Present on Sample <input checked="" type="checkbox"/> or N</p> <p>4) Unbroken on Sample <input checked="" type="checkbox"/> or N</p> <p>COC Record Present Upon Sample Rec't <input checked="" type="checkbox"/> or N</p> <p>Cooler Temp. <u>1</u> °C</p> </div> </div>			
				IC ② 2. <u>ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSON</u>							
				11-5-01 3. <u>Cancel 0624X Add 0624H + 06CSC</u>							
				4. _____							
				5. _____							
				6. _____							

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FEL EP	H. H. H.	11/26/01	0935	COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or ☒ N

NOTES: _____

4235 7954 8545

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B02-007-02		Page 1 of 1		
Collector Thomas, G/Watson, D		Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7K		
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007		Air Quality <input type="checkbox"/>		Data Turnaround 45 Days <i>15 Day</i>		
Ice Chest No. <i>See DSPC</i>		Field Logbook No. <i>EL-1551</i>		COA XL2002CHGR		Method of Shipment Fed Ex				
Shipped To RECEIVED <i>PSW 10/30/01 REGRA</i>		Offsite Property No. <i>A020018</i>		Bill of Lading/Air Bill No. <i>See DSPC</i>						
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. <i>RT 11-1-01</i> Special handling and/or storage			Preservation	HCl or H2SO4 to pH <2 Cool						
			Type of Container	4Ga*						
			No. of Container(s)	1						
			Volume	40mL						
SAMPLE ANALYSIS			VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)							
Sample No.	Matrix *	Sample Date	Sample Time							
B13C83	WATER	10/29/01	0640	X						
CHAIN OF POSSESSION				Sign/Print Names						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
<i>DS Watson/ELIAC</i>		<i>10-30-01 1215</i>		<i>REF-1A 3728 RDG</i>		<i>10/30/01 1215</i>				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
<i>Ref 1A 3728</i>		<i>11-1-01 0900</i>		<i>RECEIVED</i>		<i>11-1-01 0900</i>				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
<i>RECEIVED</i>		<i>11-1-01 0900</i>		<i>RECEIVED</i>		<i>11-1-01 0900</i>				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
<i>ECB</i>		<i>11/2/01 0935</i>		<i>RECEIVED</i>		<i>11-2-01 0935</i>				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
LABORATORY SECTION		Received By		Title				Date/Time		
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time		

SPECIAL INSTRUCTIONS

- ** Laboratory is to measure pH within 24 hours of sample receipt.
- ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0.
- ** The laboratory is to report Decane as a TIC if present in detectable quantities.

Samples stored in Ref.# *1A* at the 3728 Shipping Facility on *10/30/01*.
 Collector not available to relinquish samples on *11/1/01* for shipment.

RT 11-1-01

Matrix *

S=Soil
 SB=Soil/Sediment
 SO=Solid
 SL=Sludge
 W=Water
 O=Oil
 A=Air
 DS=Dry Solid
 DL=Dry Liquid
 T=Time
 WP=Wipe
 L=Liquid
 V=Vegetation
 O=Other

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B02-007-03		Page 1 of 1															
Collector Watson, D/Bowers DL		Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days															
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007		Air Quality <input type="checkbox"/>																			
Ice Chest No. <u>SEE OSPC</u>		Field Logbook No. EL1551		COA B20CS1673C		Method of Shipment Fed Ex																			
Shipped To TMA/RECRA		Offsite Property No. <u>A020018</u>				Bill of Lading/Air Bill No. <u>SEE OSPC</u>																			
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage			Preservation	HCl or H2SO4 to pH <2 Cool	Cool 4C	HNO3 to pH <2	H2SO4 to pH <2 Cool 4C	Cool 4C	ZnAc+NaOH to pH >9 Cool	HNO3 to pH <2	HCl or H2SO4 to pH <2 Cool														
			Type of Container	aGs*	aG	aG	aG	aG	aG	aG	aG	aG													
			No. of Container(s)	3	2	1	1	1	1	2	1	1													
			Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	40mL	40mL													
SAMPLE ANALYSIS			VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA - 8270A (Add-On) (Triethyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Chloride/Alpha; Gross Beta	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)															
Sample No.	Matrix *	Sample Date	Sample Time																						
B13CT0	WATER	10-31-01	1500	X	X	X	X	X	X	X	X														
B13CT1	WATER	10-31-01																							
CHAIN OF POSSESSION <table border="1"> <thead> <tr> <th colspan="2">Sign/Print Names</th> </tr> </thead> <tbody> <tr> <td>Relinquished By/Removed From <u>Doug Bowers</u> Date/Time <u>10-31-01/1530</u></td> <td>Received By/Stored In <u>Ref 2A 3728</u> Date/Time <u>10-31-01/1530</u></td> </tr> <tr> <td>Relinquished By/Removed From <u>Ref 2A 3728</u> Date/Time <u>11-1-01/0900</u></td> <td>Received By/Stored In <u>Ref 2A 3728</u> Date/Time <u>11-1-01/0900</u></td> </tr> <tr> <td>Relinquished By/Removed From <u>Ref 2A 3728</u> Date/Time <u>11-1-01/0900</u></td> <td>Received By/Stored In <u>Ref 2A 3728</u> Date/Time <u>11-1-01/0900</u></td> </tr> <tr> <td>Relinquished By/Removed From <u>Fed Ex</u> Date/Time <u>11/2/01 0935</u></td> <td>Received By/Stored In <u>Ref 2A 3728</u> Date/Time <u>11/2/01 0935</u></td> </tr> <tr> <td>Relinquished By/Removed From</td> <td>Received By/Stored In</td> </tr> <tr> <td>Relinquished By/Removed From</td> <td>Received By/Stored In</td> </tr> </tbody> </table>												Sign/Print Names		Relinquished By/Removed From <u>Doug Bowers</u> Date/Time <u>10-31-01/1530</u>	Received By/Stored In <u>Ref 2A 3728</u> Date/Time <u>10-31-01/1530</u>	Relinquished By/Removed From <u>Ref 2A 3728</u> Date/Time <u>11-1-01/0900</u>	Received By/Stored In <u>Ref 2A 3728</u> Date/Time <u>11-1-01/0900</u>	Relinquished By/Removed From <u>Ref 2A 3728</u> Date/Time <u>11-1-01/0900</u>	Received By/Stored In <u>Ref 2A 3728</u> Date/Time <u>11-1-01/0900</u>	Relinquished By/Removed From <u>Fed Ex</u> Date/Time <u>11/2/01 0935</u>	Received By/Stored In <u>Ref 2A 3728</u> Date/Time <u>11/2/01 0935</u>	Relinquished By/Removed From	Received By/Stored In	Relinquished By/Removed From	Received By/Stored In
Sign/Print Names																									
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Relinquished By/Removed From <u>Fed Ex</u> Date/Time <u>11/2/01 0935</u>	Received By/Stored In <u>Ref 2A 3728</u> Date/Time <u>11/2/01 0935</u>																								
Relinquished By/Removed From	Received By/Stored In																								
Relinquished By/Removed From	Received By/Stored In																								
SPECIAL INSTRUCTIONS ** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Samples stored in Ref. <u>2A</u> at the 3728 Shipping Facility on <u>10/31/01</u> . Collector not available to relinquish samples on <u>11/1/01</u> for shipment.										Matrix * S=Soil SS=Sediment SD=Solid SL=Sludge W=Water G=Gas A=Air DS=Dry Solid DL=Dry Liquid T=Time WL=Wipe L=Liquid V=Vegetation X=Other															
LABORATORY SECTION		Received By		Title		Date/Time																			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time																			

February 12, 1999

Figure 1. Sample Check-in List

Date/Time Received: 11/2/01 0935SDG#: 01116 258

Work Order Number: _____

SAF# B02-007

Shipping Container ID: _____

Chain of Custody # B02-007-02

1. Custody Seals on shipping container intact? Yes ☒ No ☐
2. Custody Seals dated and signed? Yes ☒ No ☐
3. Chain-of-Custody record present? Yes ☒ No ☐
4. Cooler temperature 1
5. Vermiculite/packing materials is Wet ☐ Dry ☐
6. Number of samples in shipping container: 17
7. Sample holding times exceeded? Yes ☐ No ☒

8. Samples have:

 tape hazard labels✓ custody seals appropriate sample labels

9. Samples are:

✓ in good condition leaking broken have air bubbles10. Were any anomalies identified in sample receipt? Yes ☐ No ☒

11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory

Yvel Hernandez
Florida Laboratory GroupDate: 11/2/01

Telephoned to: _____ On _____ By _____



Analytical Report

Client: TNU-HANFORD B02-007
LVL#: 0111L258
SDG/SAF#: H1569/H1576/B02-007

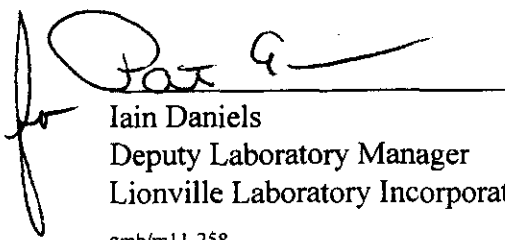
W.O.#: 11343-606-001-9999-00
Date Received: 11-02-01

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 water sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. The cooler temperature has been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. The preparation/method blanks for 3 analytes were outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
 - a). The MB results for Beryllium, Copper, and Zinc were greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

11. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated
gmb/m11-258

11-15-01
Date



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this report:
 Report #: 0111258

Digestion Procedure: 1310 1311 1312 Other:

LP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A 3010A 3015 3020A 3050B 3051 200.7 SS17
Other:

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Antimony	<u>6010B</u> <u>7041</u> ^s	<u>200.7</u> <u>204.2</u>			<u>99</u>
Arsenic	<u>6010B</u> <u>7060A</u> ^s	<u>200.7</u> <u>206.2</u>	<u>3113B</u>		<u>99</u>
Barium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Beryllium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Bismuth	<u>6010B</u> ⁱ	<u>200.7</u> ⁱ		<u>1620</u>	<u>99</u>
Boron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Cadmium	<u>6010B</u> <u>7131A</u> ^s	<u>200.7</u> <u>213.2</u>			<u>99</u>
Calcium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Chromium	<u>6010B</u> <u>7191</u> ^s	<u>200.7</u> <u>218.2</u>			<u>SS17</u>
Cobalt	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Copper	<u>6010B</u> <u>7211</u> ^s	<u>200.7</u> <u>220.2</u>			<u>99</u>
Iron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Lead	<u>6010B</u> <u>7421</u> ^s	<u>200.7</u> <u>239.2</u>	<u>3113B</u>		<u>99</u>
Lithium	<u>6010B</u> <u>7430</u> ^s	<u>200.7</u>		<u>1620</u>	<u>99</u>
Magnesium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Manganese	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Mercury	<u>7470A</u> ^s <u>7471A</u> ^s	<u>245.1</u> ^s <u>245.5</u> ^s			<u>99</u>
Molybdenum	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Nickel	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Potassium	<u>6010B</u> <u>7610</u> ^s	<u>200.7</u> <u>258.1</u> ^s			<u>99</u>
Rare Earths	<u>6010B</u> ⁱ	<u>200.7</u> ⁱ		<u>1620</u>	<u>99</u>
Selenium	<u>6010B</u> <u>7740</u> ^s	<u>200.7</u> <u>270.2</u>	<u>3113B</u>		<u>99</u>
Silicon	<u>6010B</u> ⁱ	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silica	<u>6010B</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silver	<u>6010B</u> <u>7761</u> ^s	<u>200.7</u> <u>272.2</u>			<u>99</u>
Sodium	<u>6010B</u> <u>7770</u> ^s	<u>200.7</u> <u>273.1</u> ^s			<u>99</u>
Strontium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Thallium	<u>6010B</u> <u>7841</u> ^s	<u>200.7</u> <u>279.2</u> <u>200.9</u>			<u>99</u>
Tin	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Titanium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Uranium	<u>6010B</u> ⁱ	<u>200.7</u> ⁱ		<u>1620</u>	<u>99</u>
Vanadium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Zinc	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Zirconium	<u>6010B</u> ⁱ	<u>200.7</u> ⁱ		<u>1620</u>	<u>99</u>

Other:

Method:

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- B = Indicates that the parameter was between the Instrument Detection Limit (IDL) and the Contract Required Detection Limit (CRDL)

Q QUALIFIERS

- E = The reported value is estimated because of the presence of interference.
- M = Duplicate injection precision not met.
- N = Spiked sample recovery not within control limits.
- S = The reported value was determined by the Method of Standard Additions (MSA).
- W = Post Digestion spike for Furnace AA analysis is out of control limits (85 -115 %), while sample absorbance is less than 50% of spike absorbance.
- * = Duplicate analysis not within control limits.
- + = Correlation coefficient for the MSA is less than 0.995.

ABBREVIATIONS

- PB = Method or Preparation Blank.
- S = Matrix Spike.
- T = Matrix Spike Duplicate.
- R or D = Sample Replicate

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

RFW 21-21L-033/O-01/97

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 11/13/01

CLIENT: TNU-HANFORD B02-007
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0111L258

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
-002	B13CT0	Silver, Total	0.60 u	UG/L	0.60	1.0
		Arsenic, Total	3.2 u	UG/L	3.2	1.0
		Barium, Total	0.43	UG/L	0.10	1.0
		Beryllium, Total	0.39	UG/L	0.10	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Chromium, Total	5.2	UG/L	0.60	1.0
		Copper, Total	1.2	UG/L	0.50	1.0
		Nickel, Total	1.0 u	UG/L	1.0	1.0
		Lead, Total	1.9 u	UG/L	1.9	1.0
		Selenium, Total	2.2 u	UG/L	2.2	1.0
		Vanadium, Total	0.50 u	UG/L	0.50	1.0
		Zinc, Total	6.5	UG/L	0.30	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 11/13/01

CLIENT: TNU-HANFORD B02-007
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0111L258

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
BLANK1	01L0725-MB1	Silver, Total	0.60 u	UG/L	0.60	1.0
		Arsenic, Total	3.2 u	UG/L	3.2	1.0
		Barium, Total	0.24	UG/L	0.10	1.0
		Beryllium, Total	0.31	UG/L	0.10	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Chromium, Total	0.60 u	UG/L	0.60	1.0
		Copper, Total	1.6	UG/L	0.50	1.0
		Nickel, Total	1.0 u	UG/L	1.0	1.0
		Lead, Total	1.9 u	UG/L	1.9	1.0
		Selenium, Total	2.2 u	UG/L	2.2	1.0
		Vanadium, Total	0.50 u	UG/L	0.50	1.0
		Zinc, Total	2.3	UG/L	0.30	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 11/13/01

CLIENT: TNU-HANFORD B02-007

LVL LOT #: 0111L258

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-----	-----	-----	-----	-----	-----	-----	-----
-002	B13CT0	Silver, Total	49.0	0.60u	50.0	98.0	1.0
		Arsenic, Total	1980	3.2 u	2000	98.9	1.0
		Barium, Total	1930	0.43	2000	96.4	1.0
		Beryllium, Total	50.2	0.39	50.0	99.6	1.0
		Cadmium, Total	49.2	0.30u	50.0	98.4	1.0
		Chromium, Total	201	5.2	200	98.1	1.0
		Copper, Total	247	1.2	250	98.5	1.0
		Nickel, Total	501	1.0 u	500	100.1	1.0
		Lead, Total	499	1.9 u	500	99.8	1.0
		Selenium, Total	1980	2.2 u	2000	98.8	1.0
		Vanadium, Total	487	0.50u	500	97.5	1.0
		Zinc, Total	494	6.5	500	97.4	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 11/13/01

CLIENT: TNU-MANFORD B02-007

LVL LOT #: 0111L258

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-002REP	B13CT0	Silver, Total	0.60u	0.60u	NC	1.0
		Arsenic, Total	3.2 u	3.2 u	NC	1.0
		Barium, Total	0.43	0.33	26.3	1.0
		Beryllium, Total	0.39	0.43	9.8	1.0
		Cadmium, Total	0.30u	0.30u	NC	1.0
		Chromium, Total	5.2	1.4	115.2	1.0
		Copper, Total	1.2	1.1	8.7	1.0
		Nickel, Total	1.0 u	1.0 u	NC	1.0
		Lead, Total	1.9 u	1.9 u	NC	1.0
		Selenium, Total	2.2 u	2.2 u	NC	1.0
		Vanadium, Total	0.50u	0.50u	NC	1.0
		Zinc, Total	6.5	6.4	1.6	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 11/13/01

CLIENT: TNU-HANFORD B02-007

LVL LOT #: 0111L258

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
-----	-----	-----	-----	-----	-----	-----
LCS1	01L0725-LC1	Silver, LCS	446	500	UG/L	89.2
		Arsenic, LCS	9700	10000	UG/L	97.0
		Barium, LCS	4790	5000	UG/L	95.7
		Beryllium, LCS	249	250	UG/L	99.6
		Cadmium, LCS	245	250	UG/L	97.8
		Chromium, LCS	487	500	UG/L	97.5
		Copper, LCS	1240	1250	UG/L	99.0
		Nickel, LCS	1980	2000	UG/L	99.1
		Lead, LCS	2460	2500	UG/L	98.3
		Selenium, LCS	9860	10000	UG/L	98.6
		Vanadium, LCS	2460	2500	UG/L	98.5
		Zinc, LCS	990	1000	UG/L	99.0

AREAS
ACDI

Client INU HANFORD B02-007
Est. Final Proj. Sampling Date _____
Project # 11343-606-001-9999-00
Project Contact/Phone # _____
Lionville Laboratory Project Manager OJ
QC SPEC Del STD TAT 15 day
Date Rec'd 11-2-01 Date Due 11-17-01

[illegible]

S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum
 Solids
DL - Drum
 Liquids
L - EP/TCLP
 Leachate
WI - Wipe
X - Other
F - Fish

1

002	B 13	CTO
-----	------	-----

--	--

MCQ ① 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V, Zn

IC ① 2. ICCL, ICFL, ICNO₃, ICNO₂, ICPO₄, IC₂SO₄

11-5-01 3. Cancel 0624X Add 0624H + 0625C

4. _____

5. _____

6. _____

Lionville Laboratory Use Only

Samples were:
1) Shipped ☒ or
Hand Delivered _____
Airbill # See Below
2) Ambient or Cooled _____
3) Received In Good
Condition ☒ or N
4) Samples
Property Preserved ☒ or N
5) Received Within
Holding Times ☒ or N

Tamper Resistant Seal was:

1) Present on Outer Package ☒ Y or N

2) Unbroken on Outer Package ☒ Y or N

3) Present on Sample ☒ Y or N

4) Unbroken on Sample ☒ Y or N

COC Record Present Upon Sample Rec't ☒ Y or N

Cooler Temp. 1 °C

Relinquished by	Received by	Date	Time
Field Ep	Handy	11/2/01	0935

Relinquished	Received	Date	Time
COMPOSITE	by	ORIGINAL	
WASTE		REWRITTEN	

Discrepancies Between
Samples Labels and
COC Record? Y or N
NOTES: 4235 7954 8545

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B02-007-02		Page 1 of 1	
Collector Thomas, G/Watson, D		Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7K	
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007		Air Quality <input type="checkbox"/>		Data Turnaround 45 Days 15 Day 11-1-01	
Ice Chest No. See DSPC		Field Logbook No. EL-1551		COA XL2002CHGR		Method of Shipment Fed Ex			
Shipped To ADDERA PSW REGR		Offsite Property No. A020018		Bill of Lading/Air Bill No. See DSPC					
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special handling and/or storage				Preservation		HCl or H2SO4 to pH < 2.0			
				Type of Container		aGs*			
				No. of Container(s)		1			
				Volume		40mL			
SAMPLE ANALYSIS				VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)					
Sample No.		Matrix *		Sample Date		Sample Time			
B13C83		WATER		10/29/01		0640		X	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		SPECIAL INSTRUCTIONS ** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. Samples stored in Ref.# 1A at the 3728 Shipping Facility on 10/30/01. Collector not available to relinquish samples on 11/1/01 for shipment. RT 11-1-01	
DR. WATSON/GUM		10-30-01 1215		REF. 1A 3728		10/30/01 1215			
R. J. R. THORNTON		11-1-01 0900		R. J. R. THORNTON		11-1-01 0900			
ERC		11-1-01 0900		ERC		11-1-01 0900			
FEDER		11/2/01 0935		F. Hernandez		11-2-01 0935			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Matrix * S=Soil SB=Bottom Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wp=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B02-007-03		Page 1 of 1				
Collector Watson, D/Bowers DL		Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days				
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007		Air Quality <input type="checkbox"/>								
Ice Chest No. <u>SEE OSPC</u>		Field Logbook No. EL1551		COA B20CS1673C		Method of Shipment Fed Ex								
Shipped To TMA/RECRA		Offsite Property No. <u>A020018</u>		Bill of Lading/Air Bill No. <u>SEE OSPC</u>										
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage <u>ET 11-1-01</u>				Preservation	HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2	HCl or H2SO4 to pH < 2 Cool		
				Type of Container	aG*	aG	aG	aG	aG	aG	aG	aG		
				No. of Container(s)	3	2	1	1	1	1	2			
				Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	40mL		
SAMPLE ANALYSIS				VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA - 8270A (Add-On) (Tributyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 333.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Gross Alpha; Gross Beta	VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)			
Sample No.	Matrix *	Sample Date	Sample Time											
B13CT0	WATER	10-31-01	1500	X	X	X	X	X	X					
B13GT4	WATER	10-31-01												
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix * S=Soil SB=Soil/Bottom SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drawn Solids DL=Drawn Liquids T=Trace W=Wipe L=Liquid V=Vegetation X=Other		
Relinquished By/Removed From <u>Donna Bowers</u>		Date/Time <u>10-31-01 1530</u>		Received By/Stored In <u>Ref 2A 3728</u>		Date/Time <u>10-31-01 1530</u>		** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Samples stored in Ref. 2A at the 3728 Shipping Facility on 10/31/01. Collector not available to relinquish samples on 11/1/01 for shipment. <u>ET 11-1-01</u>						
Relinquished By/Removed From <u>Ref 2A 3728</u>		Date/Time <u>11-1-01 0900</u>		Received By/Stored In <u>Ref 2A 3728</u>		Date/Time <u>11-1-01 0900</u>								
Relinquished By/Removed From <u>Ref 2A 3728</u>		Date/Time <u>11-1-01 0900</u>		Received By/Stored In <u>Ref 2A 3728</u>		Date/Time <u>11-1-01 0900</u>								
Relinquished By/Removed From <u>Fed Ex</u>		Date/Time <u>11/2/01 0935</u>		Received By/Stored In <u>Ref 2A 3728</u>		Date/Time <u>11/2/01 0935</u>								
Relinquished By/Removed From <u>Fed Ex</u>		Date/Time <u>11/2/01 0935</u>		Received By/Stored In <u>Ref 2A 3728</u>		Date/Time <u>11/2/01 0935</u>								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
LABORATORY SECTION		Received By		Title				Date/Time						
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time						



Analytical Report

Client: THU HANFORD B02-007

W.O.#: 11343-606-001-9999-00

LVL#: 0111L258

Date Received: 11-02-01

SDG/SAF#: H1569/H1576/B99-000

11/23/01

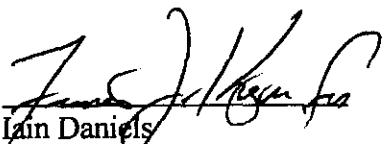
GC SCAN

One (1) water sample was collected on 10-31-01.

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on Method 8015B for Gasoline Range Organic (GRO) target compounds Ethanol and n-Propyl Alcohol on 11-05-01.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. The sample was packaged and stored as specified in the method protocol.
2. Surrogates are not currently employed in the methodology.
3. All initial calibrations were within acceptance criteria.
4. All continuing calibrations run prior to analysis were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. Insufficient volume to perform analyses for Sample B13C83.


Iain Daniels
Deputy Laboratory Manager
Lionville Laboratory Incorporated

r:\share\gcpest\harr temp\thu258gsc.doc

11/23/01
Date

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.



GLOSSARY OF GC VOLATILES DATA

DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- SP** = Indicates Spiked Compound.



GLOSSARY OF GC VOLATILES DATA

- P** = This flag is used for an GC VOLATILES target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC VOLATILES.

Lionville Laboratory, Inc.

GC SCAN

Report Date: 11/09/01 14:19

RFW Batch Number: 0111L258

Client: TNU-HANFORD B02-007

Work Order: 11343606001 Page: 1

15

	Cust ID:	B13CT0	B13CT0	B13CT0	BLK	BLK BS	BLK BSD
Sample	RFW#:	002	002 MS	002 MSD	01LJLB05-MB1	01LJLB05-MB1	01LJLB05-MB1
Information	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
n-Propyl Alcohol		5.0 U	94 %	96 %	5.0 U	99 %	99 %
Ethanol		5.0 U	103 %	99 %	5.0 U	101 %	100 %

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U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

ACDI

Cooler: ☒ Y or ☐ N

00

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B02-007-03		Page 1 of 1				
Collector Watson, D/Bowers DL		Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days				
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007		Air Quality <input type="checkbox"/>								
Ice Chest No. <u>SEE OSPC</u>		Field Logbook No. EL1551		COA B20CS1673C		Method of Shipment Fed Ex								
Shipped To TMA/RECRA		Offsite Property No. <u>AD20018</u>		Bill of Lading/Air Bill No. <u>SEE OSPC</u>										
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage				Preservation	HCl or H2SO4 to pH <2 Cool	Cool 4C	HNO3 to pH <2	H2SO4 to pH <2 Cool 4C	Cool 4C	ZnAc+NaOH to pH >9 Cool	HNO3 to pH <2	HCl or H2SO4 to pH <2 Cool		
				Type of Container	aG*	aG	aG	aG	aG	aG				
				No. of Container(s)	3	2	1	1	1	1	2			
				Volume	40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	40mL		
SAMPLE ANALYSIS				VOA - E260A (TCL); VOA - E260A (Add-On) (1-Propanol, Ethanol)	Semi-VOA - E270A (Add-On) (Diethyl phosphate)	See item (1) in Special Instructions.	NO2/NO3 - 353.1; Ammonia - 350.3	See item (2) in Special Instructions.	Sulfides - 9030	Gross Alpha; Gross Beta	VOA - E260A (TCL); VOA - E260A (Add-On) (1-Propanol, Ethanol)			
Sample No.	Matrix *	Sample Date	Sample Time											
B13CT0	WATER	10-31-01	1500	X	X	X	X	X	X					
B13GT1	WATER	10-31-01												
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS						Matrix *				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		SPECIAL INSTRUCTIONS ** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Samples stored in Ref. # <u>2A</u> at the 3728 Shipping Facility on <u>10/31/01</u> . Collector not available to relinquish samples on <u>11/1/01</u> for shipment.				S-Solid SS-Sediment SC-Solid SL-Sludge W-Water O-Oil A-Air DS-Dry Solid DL-Dry Liquid T-Tissue WS-Wipe L-Liquid V-Vegetation X-Other		
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time								
LABORATORY SECTION		Received By		Title		Date/Time								
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By						Date/Time				

February 12, 1999

Figure 1. Sample Check-in List

Date/Time Received: 11/2/01 0935SDG#: 01116 258

Work Order Number: _____

SAF# B02-007

Shipping Container ID: _____

Chain of Custody # B02-007-02

1. Custody Seals on shipping container intact? Yes ☒ No ☐
2. Custody Seals dated and signed? Yes ☒ No ☐
3. Chain-of-Custody record present? Yes ☒ No ☐
4. Cooler temperature _____
5. Vermiculite/packing materials is Wet ☐ Dry ☐
6. Number of samples in shipping container: 17
7. Sample holding times exceeded? Yes ☐ No ☒

8. Samples have:

_____ tape

_____ hazard labels

_____ ☒ custody seals

_____ appropriate sample labels

9. Samples are:

_____ ☒ in good condition

_____ leaking

_____ broken

_____ have air bubbles

10. Were any anomalies identified in sample receipt? Yes ☐ No ☒

11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory Peter Hernandez Date: 11/2/01

Telephoned to: _____ On _____ By _____



Client: TNU-HANFORD B02-007
LVL #: 0111L258
SDG/SAF #: H1569/B02-007

W.O. #: 11343-606-001-9999-00
Date Received: 11-02-2001

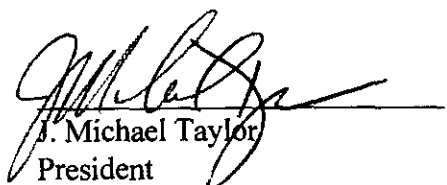
SEMIVOLATILE

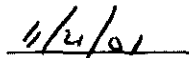
One (1) water sample was collected on 10-31-2001.

The sample and its associated QC samples were extracted on 11-06-2001 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL and Tributylphosphate Semivolatile target compounds on 11-17-2001.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The sample was extracted and analyzed within required holding time.
3. Non-target compounds were detected in the sample.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. Internal standard area and retention time criteria were met.
8. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


J. Michael Taylor
President
Lionville Laboratory Incorporated


Date

som\group\data\bna\tnu-hanford-0111-258.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 2 pages.

GLOSSARY OF BNA DATA

DATA QUALIFIERS

- U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** = Interference.
- NQ** = Result qualitatively confirmed but not able to quantify.
- A** = Indicates that a TIC is a suspected aldol-condensation product.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY OF BNA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quantitation modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quantitation modifications:

- MP** - Missed Peak: manually added peak not found by automatic quantitation program.
- PA** - Peak Assignment: quantitation report was changed to reflect correct peak assignment.
- RI** - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP** - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB** - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI** - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

2

Page : 1a

Surrogate Recovery	Nitrobenzene-d5	85	%	71	%	73	%	86	%	80	%
	2-Fluorobiphenyl	80	%	67	%	68	%	78	%	76	%
	p-Terphenyl-d14	103	%	94	%	96	%	98	%	89	%
	Phenol-d5	83	%	69	%	72	%	59	%	75	%
	2-Fluorophenol	79	%	67	%	69	%	77	%	72	%
	2,4,6-Tribromophenol	78	%	72	%	79	%	83	%	80	%

*= Outside of EPA CLP QC limits.

Cust ID:

B13CT0

B13CT0

B13CT0

SBLKJQ

SBLKJQ BS

RFW#:

002

002 MS

002 MSD

01LE1335-MB1

01LE1335-MB1

2-Chloronaphthalene	10	U	23	U	23	U	10	U	10	U
2-Nitroaniline	25	U	57	U	57	U	25	U	25	U
Dimethylphthalate	10	U	23	U	23	U	10	U	10	U
Acenaphthylene	10	U	23	U	23	U	10	U	10	U
2,6-Dinitrotoluene	10	U	23	U	23	U	10	U	10	U
3-Nitroaniline	25	U	57	U	57	U	25	U	25	U
Acenaphthene	10	U	70	%	72	%	10	U	77	%
2,4-Dinitrophenol	25	U	57	U	57	U	25	U	25	U
4-Nitrophenol	25	U	61	%	65	%	25	U	64	%
Dibenzofuran	10	U	23	U	23	U	10	U	10	U
2,4-Dinitrotoluene	10	U	75	%	80	%	10	U	78	%
Diethylphthalate	10	U	23	U	23	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	23	U	23	U	10	U	10	U
Fluorene	10	U	23	U	23	U	10	U	10	U
4-Nitroaniline	25	U	57	U	57	U	25	U	25	U
4,6-Dinitro-2-methylphenol	25	U	57	U	57	U	25	U	25	U
N-Nitrosodiphenylamine (1)	10	U	23	U	23	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	23	U	23	U	10	U	10	U
Hexachlorobenzene	10	U	23	U	23	U	10	U	10	U
Pentachlorophenol	25	U	19	%	21	%	25	U	22	%
Phenanthrene	10	U	23	U	23	U	10	U	10	U
Anthracene	10	U	23	U	23	U	10	U	10	U
Carbazole	10	U	23	U	23	U	10	U	10	U
Di-n-Butylphthalate	1	J	23	U	23	U	10	U	10	U
Fluoranthene	10	U	23	U	23	U	10	U	10	U
Pyrene	10	U	88	%	91	%	10	U	87	%
Butylbenzylphthalate	10	U	23	U	23	U	10	U	10	U
3,3'-Dichlorobenzidine	10	U	23	U	23	U	10	U	10	U
Benzo(a)anthracene	10	U	23	U	23	U	10	U	10	U
Chrysene	10	U	23	U	23	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	0.7	J	23	U	23	U	10	U	10	U
Di-n-Octyl phthalate	10	U	23	U	23	U	10	U	10	U
Benzo(b)fluoranthene	10	U	23	U	23	U	10	U	10	U
Benzo(k)fluoranthene	10	U	23	U	23	U	10	U	10	U
Benzo(a)pyrene	10	U	23	U	23	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	23	U	23	U	10	U	10	U
Dibenzo(a,h)anthracene	10	U	23	U	23	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	23	U	23	U	10	U	10	U
Tributylphosphate	10	U	23	U	23	U	10	U	10	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B13CT0

Lab Name: Lionville Labs, Inc. Work Order: 11343606001Client: TNU-HANFORD B02-007Matrix: (soil/water) WATERLab Sample ID: 0111L258-002Sample wt/vol: 990 (g/mL) MLLab File ID: A111714Level: (low/med) LOWDate Received: 11/02/01% Moisture: decanted: (Y/N) Date Extracted: 11/06/01Concentrated Extract Volume: 1000 (uL)Date Analyzed: 11/17/01Injection Volume: 2.0 (uL)Dilution Factor: 1.00GPC Cleanup: (Y/N) NpH: 7.0

CONCENTRATION UNITS:

Number TICs found: 2(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	18.695	3	J
2.	UNKNOWN	22.054	4	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKJQ

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNU-HANFORD B02-007

Matrix: (soil/water) WATER

Lab Sample ID: 01LE1335-MB1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: A111712

Level: (low/med) LOW

Date Received: 11/06/01

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 11/06/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 11/17/01

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	11.269	1	J
2.	UNKNOWN	12.025	3	J

9

ACDI

E F G H

Discrepancies Between
Samples Labels and
COC Record? Y or N ☒

NOTES: See above
4235 7954 8545

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B02-007-02		Page 1 of 1		
Collector Thomas, G/Watson, D		Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7K		
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007		Air Quality <input type="checkbox"/>		Date Turnaround 45 Days 15 Day		
Ice Chest No. See DSPC		Field Logbook No. EL-1551		COA XL2002CHGR		Method of Shipment Fed Ex				
Shipped To EDS PSW 12/30/01 RERA		Offsite Property No. A020018		Bill of Lading/Air Bill No. See DSPC						
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. RT 11-1-01 Special handling and/or storage			Preservation	HCl or H2SO4 to pH <2 Cool						
			Type of Container	aGs*						
			No. of Container(s)	1						
			Volume	40mL						
SAMPLE ANALYSIS			VOA - E260A (TCL); VOA - E260A (Add-On) (1-Propanol, Ethanol)							
Sample No.	Matrix *	Sample Date	Sample Time							
B13C83	WATER	10/29/01	0640	X						
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *		
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		SPECIAL INSTRUCTIONS ** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. Samples stored in Ref. # 1A at the 3728 Shipping Facility on 10/30/01. Collector not available to relinquish samples on 11/1/01 for shipment. RT 11-1-01		
DS WATSON/GWATSON		10-30-01 1215		REF. 1A 3728 BLDG		10/30/01 1215				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
R. J. R. THORNTON		11-1-01 0900		R. J. R. THORNTON		11-1-01 0900				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
R. J. R. THORNTON		11-1-01 0900		F. E. O. A. J.		11-1-01 0900				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
F. E. O. A. J.		11/2/01 0935		V. A. Hernandez		11-2-01 0935				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				
LABORATORY SECTION		Received By		Title		Date/Time				
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time				

12

Bechtel Hanford Inc.				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B02-007-03		Page 1 of 1				
Collector Watson, D/Bowers DL				Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days				
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin				Sampling Location 200 East & West		SAF No. B02-007		Air Quality <input type="checkbox"/>								
Ice Chest No. SEE OSPC				Field Logbook No. EL1551		COA B20CS1673C		Method of Shipment Fed Ex								
Shipped To TMA/RECRA				Offsite Property No. A020018				Bill of Lading/Air Bill No. SEE OSPC								
POSSIBLE SAMPLE HAZARD/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage				Preservation		HCl or H2SO4 to pH < 2 Cool	Cool 4C	HNO3 to pH < 2	H2SO4 to pH < 2 Cool 4C	Cool 4C	ZnAc+NaOH to pH > 9 Cool	HNO3 to pH < 2	HCl or H2SO4 to pH < 2 Cool			
				Type of Container		aG*	aG	aG	aG	aG	aG	aG	aG	aG	aG	
				No. of Container(s)		3	2	1	1	1	1	2				
				Volume		40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	40mL			
SAMPLE ANALYSIS				VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propanol, Ethanol)		Semi-VOA - 8270A (Add-On) (Tributyl phosphate)		See item (1) in Special Instructions.		NO2/NO3 - 353.1; Ammonia - 350.3		See item (2) in Special Instructions.		Sulfides - 9030		
Sample No.		Matrix *		Sample Date		Sample Time										
B13CT0		WATER		10-31-01		1500		X X X X X X X X								
B13GT1		WATER		10-31-01												
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS								
Relinquished By/Removed From Doug Date/Time 10-31-01/1530				Received By/Stored In A. X 2A 3728 Date/Time 10-31-01/1530				** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Samples stored in Ref. 2A at the 3728 Shipping Facility on 10/31/01. Collector not available to relinquish samples on 11/1/01 for shipment. ET 11-1-01								
Relinquished By/Removed From Ref 2A 3728 Date/Time 11-1-01				Received By/Stored In Ref 2A 3728 Date/Time 11-1-01												
Relinquished By/Removed From Ref 2A 3728 Date/Time 11-1-01				Received By/Stored In Ref 2A 3728 Date/Time 11-1-01												
Relinquished By/Removed From Fed Ex Date/Time 11/2/01 0935				Received By/Stored In Fed Ex Date/Time 11/2/01 0935												
Relinquished By/Removed From Fed Ex Date/Time 11/2/01 0935				Received By/Stored In Fed Ex Date/Time 11/2/01 0935												
Relinquished By/Removed From Fed Ex Date/Time 11/2/01 0935				Received By/Stored In Fed Ex Date/Time 11/2/01 0935												
Relinquished By/Removed From Fed Ex Date/Time 11/2/01 0935				Received By/Stored In Fed Ex Date/Time 11/2/01 0935												
Relinquished By/Removed From Fed Ex Date/Time 11/2/01 0935				Received By/Stored In Fed Ex Date/Time 11/2/01 0935												
Relinquished By/Removed From Fed Ex Date/Time 11/2/01 0935				Received By/Stored In Fed Ex Date/Time 11/2/01 0935												
Relinquished By/Removed From Fed Ex Date/Time 11/2/01 0935				Received By/Stored In Fed Ex Date/Time 11/2/01 0935												
LABORATORY SECTION		Received By		Title		Date/Time										
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time										

Matrix *

B=Soil
SD=Sludge
SO=Solid
W=Water
O=Oil
A=Air
DS=Dry Solid
DL=Dry Liquid
F=Flame
W=Wipe
L=Liquid
V=Vegetation
X=Other



Client: TNU-HANFORD B02-007

LVL #: 0111L258

SDG/SAF #: H1569, H1576/B02-007

W.O. #: 11343-606-001-9999-00

Date Received: 11-02-2001

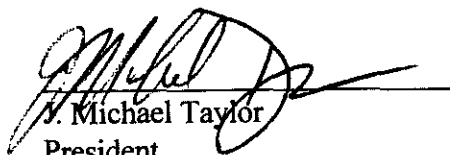
GC/MS VOLATILE

Two (2) water samples were collected on 10-29,31-2001.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260B for TCL Volatile target compounds on 11-08-2001.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. Samples were analyzed within required holding time.
3. Non-target compounds were not detected in the samples.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blanks contained the common laboratory contaminant Methylene Chloride at a level less than 2x the CRQL.
8. Internal standard area and retention time criteria were met.
9. A spectral search was performed for Decane; however, it was not detected in the samples.
10. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."



J. Michael Taylor
President

Lionville Laboratory Incorporated

11/23/01
Date

son\group\data\voa\tnu-hanford\0111-258.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

GLOSSARY OF VOA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

GLOSSARY OF VOA DATA

DATA QUALIFIERS

- U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** = Interference.
- NQ** = Result qualitatively confirmed but not able to quantify.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** = Additional qualifiers used as required are explained in the case narrative.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

- MP** - Missed Peak: manually added peak not found by automatic quan program.
- PA** - Peak Assignment: quan report was changed to reflect correct peak assignment.
- RI** - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP** - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB** - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI** - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

RFW Batch Number: 0111L258

Client: TNU-HANFORD B02-007

Work Order: 11343606001 Page: 1a

	Cust ID:	B13C83	B13CT0	B13CT0	B13CT0	VBLKJS	VBLKJS BS
Sample Information	RFW#:	001	002	002 MS	002 MSD	01LVX487-MB1	01LVX487-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Toluene-d8		100 %	100 %	101 %	101 %	97 %	99 %
Surrogate Bromofluorobenzene		90 %	94 %	94 %	96 %	91 %	98 %
Recovery 1,2-Dichloroethane-d4		97 %	95 %	89 %	92 %	99 %	96 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		6 B	7 B	7 B	8 B	9	8 B
Acetone		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	85 %	84 %	5 U	81 %
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone		10 U	10 U	10 U	10 U	10 U	1 J
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	101 %	101 %	2 J	95 %
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Benzene		5 U	5 U	89 %	92 %	5 U	89 %
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Toluene		5 U	5 U	100 %	99 %	5 U	94 %

*= Outside of EPA CLP OC limits.

Cust ID:

B13C83

B13CT0

B13CT0

B13CT0

VBLKJS

VBLKJS BS

RfW#:

001

002

002 MS

002 MSD

01LVX487-MB1

01LVX487-MB1

Chlorobenzene	5 U	5 U	99 %	100 %	5 U	93 %
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

0411258

Client TNU HANFORD B02-007
 Est. Final Proj. Sampling Date _____
 Project # 11343-606-001-9999-00
 Project Contact/Phone # _____
 Lionville Laboratory Project Manager OT
 QC SPEC Del STD TAT 15 day

Refrigerator #

#/Type Container

Volume

Preservatives

ANALYSES REQUESTED

ORGANIC

VOA

BNA

Pest/PCB

Herb

INORG

Metal

CN

Date Rec'd 11-2-01Date Due 11-17-01

MATRIX CODES:

S - Soil
 SE - Sediment
 SO - Solid
 SL - Sludge
 W - Water
 O - Oil
 A - Air
 DS - Drum Solids
 DL - Drum Liquids
 L - EP/TCLP Leachate
 WT - Wipe
 X - Other
 F - Fish

Lab ID

Client ID/Description

Matrix QC Chosen (✓)

MS MSD

Matrix

Date Collected

Time Collected

0624X

X5290

Lionville Laboratory Use Only

MCTO

I2N2

I2N3N

I2O

I2PH

I2SD

001 B13 C83

002 B13 CTO

W

10-27-01

0640

1

L

10-31-01

1500

3

2

1

1

1

1

Special Instructions:

DATE/REVISIONS:

MCTO 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu, Ni, V, Zn

IC ① 2. I2CL, I2FL, I2NO3, I2NO2, I2PO4, I2SO4

11-5-01 3. Cancel 0624X Add 0624H + 06CSC

4. _____

5. _____

6. _____

Relinquished by

Received by

Date

Time

Fed Ep

Hendy

11/2/01

0935

Relinquished

COMPOSITE WASTE

Received by

Date

Time

ORIGINAL
REWRITTEN

Discrepancies Between
 Samples Labels and
 COC Record? Y or N
 NOTES:
 4235 7954 8545

Lionville Laboratory Use Only

Samples were:

- 1) Shipped ☒ or
 Hand Delivered _____
 Ambient # See Below
 2) Ambient or Chilled _____
 3) Received in Good
 Condition ☒ or N
 4) Samples
 Properly Preserved ☒ or N
 5) Received Within
 Holding Times ☒ or N

Tamper Resistant Seal was:

- 1) Present on Outer
 Package ☒ or N
 2) Unbroken on Outer
 Package ☒ or N
 3) Present on Sample
☒ or N
 4) Unbroken on
 Sample ☒ or N
 COC Record Present
 Upon Sample Rec'd ☒ or N
 Cooler
 Temp. 1 °C

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B02-007-02		Page 1 of 1	
Collector Thomas, G/Watson, D		Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7K	
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin		Sampling Location 200 East & West		SAF No. B02-007		Air Quality <input type="checkbox"/>		Data Turnaround 45 Days 15 Day	
Ice Chest No. See DSPC		Field Logbook No. EL-1551		COA XL2002CHGR		Method of Shipment Fed Ex			
Shipped To RECEIVED 10/30/01 REGRA		Offsite Property No. A020018		BRI of Loading/Air BRI No. See DSPC					
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. RT 11-1-01 Special handling and/or storage					Preservation		HCl or H2SO4 to pH < 2 Coo		
					Type of Container		a/c*		
					No. of Container(s)		1		
					Volume		40mL		
SAMPLE ANALYSIS					VOA - 8260A (TCL); VOA - 8260A (Add-On) (1- Propanol, Ethanol)				
Sample No.	Matrix *	Sample Date	Sample Time						
B13C83	WATER	10/29/01	2640	X					
CHAIN OF POSSESSION					SPECIAL INSTRUCTIONS				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		SPECIAL INSTRUCTIONS ** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using EPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. Samples stored in Ref.# 1A at the 3728 Shipping Facility on 10/30/01. Collector not available to relinquish samples on 11/1/01 for shipment. RT 11-1-01	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Matrix * S=Soil SB=Sediment SO=Solid ST=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Time WP=Wipe L=Liquid V=Vegetation X=Other	
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			

Bechtel Hanford Inc.				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B02-007-03		Page 1 of 1			
Collector Watson, D/Bowers DL				Company Contact Cearlock, CS		Telephone No. 372-9638		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days			
Project Designation 200 Area Source Characterization 200-CS-1 OU - QC Samplin				Sampling Location 200 East & West		SAF No. B02-007				Air Quality <input type="checkbox"/>					
Ice Chest No. SEE OSPC				Field Logbook No. EL1551		COA B20CS1673C		Method of Shipment Fed Ex							
Shipped To TMA/RECRA				Offsite Property No. A020018				Bill of Lading/Air Bill No. SEE OSPC							
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage				Preservation		HCl or H2SO4 to pH <2 Cool	Cool 4C	HNO3 to pH <2	H2SO4 to pH <2 Cool 4C	Cool 4C	ZnAs+NaOH to pH >9 Cool	HNO3 to pH <2	HCl or H2SO4 to pH <2 Cool		
				Type of Container		aGs*	aG	aG	aG	aG	aG	aG	aG	aG	aG
				No. of Container(s)		3	2	1	1	1	1	2			
				Volume		40mL	1000mL	1000mL	1000mL	1000mL	500mL	1000mL	40mL		
SAMPLE ANALYSIS				VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propenol, Ethanol)		Semi-VOA - 8270A (Add-On) (Tributyl phosphate)		See item (1) in Special Instructions		NO2/NO3 - 353.1; Ammonia - 350.3		See item (2) in Special Instructions			
				Sulfides - 9030		Gross Alpha; Gross Beta		VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Propenol, Ethanol)							
Sample No.		Matrix *		Sample Date		Sample Time									
B13CT0		WATER		10-31-01		1500		X X X X X X							
B13CT1		WATER		10-31-01											
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS							
Relinquished By/Removed From Doug Bowers Date/Time 10-31-01/1530				Received By/Stored In A. X 2A 3728 Date/Time 10-31-01/1530				SPECIAL INSTRUCTIONS ** Laboratory is to measure pH within 24 hours of sample receipt. ** The ERC acknowledges the 48-hour holding time will not be met for Nitrate using BPA method 300.0. ** The laboratory is to report Decane as a TIC if present in detectable quantities. (1) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Beryllium, Copper, Nickel, Vanadium, Zinc) (2) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 Samples stored in Ref. 2A at the 3728 Shipping Facility on 10/31/01. Collector not available to relinquish samples on 11/1/01 for shipment. RT 11-1-01							
Relinquished By/Removed From R. P. 2A 3728 Date/Time 11-1-01/0900				Received By/Stored In R. P. 2A 3728 Date/Time 11-1-01/0900											
Relinquished By/Removed From R. P. 2A 3728 Date/Time 11-1-01/0900				Received By/Stored In R. P. 2A 3728 Date/Time 11-1-01/0900											
Relinquished By/Removed From F. E. 60 Date/Time 11/2/01 0935				Received By/Stored In F. E. 60 Date/Time 11/2/01 0935											
Relinquished By/Removed From F. E. 60 Date/Time 11/2/01 0935				Received By/Stored In F. E. 60 Date/Time 11/2/01 0935											
Relinquished By/Removed From F. E. 60 Date/Time 11/2/01 0935				Received By/Stored In F. E. 60 Date/Time 11/2/01 0935											
LABORATORY SECTION		Received By		Title				Date/Time							
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By				Date/Time							